

Patent claims

1. A communications system for mobile telecommunications consisting of at least one switching unit which serves a predefined total area and in which at least one subscriber area has been defined within this total area and a subscriber telephone number is allocated to this subscriber area.
2. A communications system according to claim 1 in which it is intended to have four subscriber areas and preferably the first subscriber area is allocated to a home zone of the subscriber and the second subscriber area to a business zone of the subscriber.
3. A communications system according to claim 1 or 2 whereby in the case of several selected subscriber areas the individual areas can overlap.
4. A communications system according to one of the claims 2 or 3 whereby the subscriber areas have differing priorities for usage.
5. A communications system according to one of the claims 1 to 4 in which the subscriber area is entered in the subscriber identity module (SIM).
6. A communications system according to one of the claims 1 to 5 in which the subscriber area comprises several cells and/or serves several mobile user units.
7. A communications system according to one of the claims 1 to 6 in which a first subscriber telephone number is intended for the mobile subscriber telephone number and a second intended for a telephone number used for the fixed network.

8. A communications system according to claim 7 in which at least one storage area (cache) is intended for the subscriber area on the subscriber identity module.
9. A communications system according to one of the claims 1 to 8 in which the subscriber area is defined via a location point and the location radius.
10. A communications system according to claim 9 in which the location radius is determined by sampling several cells in the vicinity of the location point. The length of the location radius is fixed according to the strength of reception.
11. A communications system according to one of the claims 1 to 10 in which it is intended to have one or more fixed stations within the subscriber area.
12. A communications system according to claim 11 in which the location point is coincidental with the position of the fixed station.
13. A communications system according to one of the claims 1 to 12 in which provision is made for a display for the mobile user unit which shows whether the mobile user is located within the subscriber area.
14. A communications system according to one of the claims 1 to 13 in which the global system for mobile communications (GSM) is used.
15. A communications system according to claim 14 in which provision is made for a first and a second flag, whereby the first flag signals whether the mobile user unit is authorised for the subscriber area and a second flag signals whether an allocation has already been made for the subscriber area.

16. A set of procedures for operating a communications system for mobile telecommunications, in particular using the communications system according to one of the claims 1 to 15, which comprises following steps:

- a) providing a switching unit with a total area;
- b) defining at least one subscriber area within this total area; and
- c) allocating at least one subscriber number for the subscriber area.

17. A set of procedures according to claim 16 in which the subscriber area is defined and set by the switching unit.

18. A set of procedures according to claim 17 in which the subscriber area is defined via

- a) specifying a location point, for example the name of a street;
- b) determining the absolute value of the location radius using a graphic information system (GIS) with a database including the location points and considering the fact that several cells are within the location radius; and
- c) writing the location point and the location radius to a file of the switching unit; and
- d) transmitting the location point and the location radius to the subscriber identity module of the mobile user unit.

19. A set of procedures according to claim 16 in which the subscriber area is defined via the mobile user unit.

20. A set of procedures according to claim 19 in which the subscriber area is defined via

- a) checking the first and second flag, whereby the first flag signals whether the mobile user unit is authorised for the subscriber area and a second flag signals whether an allocation to the subscriber area has already taken place;
- b) selecting the cells around the mobile user unit according to the strength of the signals;
- c) recording the cell currently used for transmission;
- d) determining the area code and the cell identity (cell-ID) on the basis of the recorded cell;
- e) transmitting the area code and the cell identity to a collecting point of the switching unit and the simultaneous storage of the address of the collecting point in the subscriber identity module (SIM);
- f) determining the location point and the location radius according to a file intended for the collecting point and which contains all the cells;
- g) producing a subscriber file within the collecting point which is subject to write protection;
- h) transmitting the location point and the location radius to the subscriber identity module of the mobile user unit;
- i) updating the location point and location radius stored in the mobile user unit.

21. A set of procedures according to one of the claims 18 or 20 in which the square of the location radius is transmitted to the subscriber identity module.
22. A set of procedures according to one of the claims 16 to 21 in which it is displayed whether the mobile user unit is located in the subscriber area.
23. A set of procedures according to claim 22 in which the check is made whether the new cell is located within a given subscriber area.
24. A set of procedures according to claim 23 in which it is displayed which subscriber area has been activated.
25. A set of procedures according to one of the claims 16 to 21 in which arriving information is passed on if the mobile user unit is located outside the subscriber area.
26. A set of procedures according to one of the claims 16 to 25 in which the definition of the sub-area can be made several times and/or with different cells.
27. A set of procedures according to one of the claims 16 to 26 in which two subscriber numbers are allocated to one subscriber area.